

REMARKS

Claims 1, 3, 4, 8, 9, 11-14, and 17-24 are currently pending. Claims 2, 5-7, 15 and 16 were previously cancelled and claim 10 is currently cancelled. Claim 1 is currently amended and support can be found, for example, in paragraph [0062] and original claim 10. Claims 23 and 24 are currently amended and support can be found, for example in paragraph [0058] and Figure 4A. Claim 20 is currently amended to remove the repetitive limitations. The specification has been amended to correct typographical errors. No new matter is added.

Examiner Interview

Applicants thank Examiner Hodge for the interview conducted on November 16, 2009 with Applicant's representative Jocelyn D. Ram (54,898). In this interview proposed amendments were discussed, including the amendments to claims 23 and 24 submitted herewith.

103 Rejections

Claims 1, 3, 4, 8-14, 17-22 and 24 stand rejected under 35 U.S.C. § 103(a) as allegedly being rendered obvious over U.S. Patent 6,080,503 to Schmid et al. ("Schmid"). Applicants respectfully traverse this rejection.

Schmid describes an electrochemical cell stack comprising "a plurality of membrane electrode assemblies interposed between pairs of separator plates" (abstract). Schmid further describes "each membrane electrode assembly is adhesively bonded to the adjacent pair of separator plates" (abstract). The adhesive bonding agent 50 is applied to the MEA (membrane electrode assembly) 5 and "the MEA 5 is consolidated with the separator plates 11, 12 *immediately after* the application of adhesive or at least *before full hardening* of the adhesive." (col 7, lines 35 – 38, emphasis added). Thus, Schmid fails to disclose the sealant is adapted to be hardened before the plurality of components is stacked, as claimed. In the present invention, the adhesive is hardened before stacking to allow for easy disassembly, as the components are bonded by the adhesive force alone. Schmid discloses the separator plates 11 and 12 "may be pressed together until contact is made" (col 8, lines 29-30). Thus, Schmid uses compressive force to hold the components together while the adhesive hardens. Schmid fails to disclose or suggest all the limitations of claim 1 and all claims dependent therefrom.

With respect to independent claim 24, Schmid fails to disclose a first retaining portion and a second retaining portion formed as tapered surfaces. The Examiner has identified the retaining portion in the Figure 4a, as reproduced on page 4 of the Office Action. As can be clearly seen, there is no tapered portion in the structure of Schmid. Furthermore, it would not be obvious to make such a modification as the tapered design has criticality. Specifically, the tapered portion more evenly distributes the pressure than square-shaped retaining portions. Thus, Schmid fails to disclose or suggest all the limitations of claim 24.

Claim 11 stands rejected under 35 U.S.C. § 103(a) as allegedly being rendered obvious over Schmid in view of U.S. Publication 2002/0197519 to Einhart et al. (“Einhart”). Applicants respectfully traverse this rejection. As discussed above, Schmid fails to disclose or suggest all the limitations of claim 1, from which claim 11 depends. Einhart cannot cure these deficiencies.

Einhart describes an electrochemical cell stack with a complex cross-sectional shape that receives a bead of adhesive. As can be seen in Figures 8 and 9, the adhesive is applied onto raised central portion 220 in a bead 214 and then is pressed by the addition of a top plate to spread out into the depressed portions 222 (paragraph [0027]). Thus, Einhart fails to disclose the sealant is adapted to be hardened before the plurality of components is stacked, as claimed. Furthermore, such a modification would go against the teaching of Einhart, since the adhesive would not be able to spread out into the depressions once it was hardened. Thus, Schmid and Einhart fail to disclose or suggest all the limitations of claim 11.

Claims 1, 3, 4, 8-14 and 17-24 stand rejected under 35 U.S.C. § 103(a) as allegedly being rendered obvious over Schmid in view of U.S. Publication 2002/0031698 to Inoue et al. (“Inoue”). Applicants respectfully traverse this rejection. As discussed above, Schmid fails to disclose or suggest all the limitations of independent claims 1, 23, or 24 and Inoue cannot cure these deficiencies.

Inoue describes a fuel cell having a first separator 14, a second separator 16, and a fuel cell subunit 12 placed therebetween. The three layers are sealed together by liquid sealant S. The liquid sealant is first placed in the grooves of the separators and then the three layers are compressed together by pressers 82 while heat is applied in an oven 88 to harden the liquid sealant S (paragraphs [0107], [0110]). Thus, Inoue fails to disclose the sealant is adapted to be hardened before the plurality of components is stacked, as claimed. Furthermore, such a modification would go against the teaching of Inoue, since the adhesive would not be able to

spread out into the grooves if it was hardened before stacking. Thus, Schmid and Inoue fail to disclose or suggest all the limitations of claim 1.

With respect to independent claims 23 and 24, neither Schmid nor Inoue discloses a first retaining portion or a second retaining portion formed as a tapered surface. Furthermore, it would not be obvious to make such a modification as the tapered design has criticality. Specifically, the tapered portion more evenly distributes the pressure than square-shaped retaining portions. Thus, Schmid and Inoue fail to disclose or suggest all the limitations of claims 23 and 24.

Claims 1, 3, 4, 8-14 and 17-22 and 24 stand rejected under 35 U.S.C. § 103(a) as allegedly being rendered obvious over Schmid in view of U.S. Patent 6,596,427 to Wozniczka et al. (“Wozniczka”). Applicants respectfully traverse this rejection. As discussed above, Schmid fails to disclose or suggest all the limitations of independent claims 1 and 24 and Wozniczka cannot cure these deficiencies.

Wozniczka describes an electrochemical cell stack having an encapsulating seal 80 that is formed on at least one side of the stack. The Examiner relies upon Wozniczka for the disclosure of a thermoplastic material for the seal. It is noted however that this encapsulating seal is on the outside of the stack and is not necessarily the same material that is used between the layers. Furthermore, Wozniczka fails to disclose the sealant is adapted to be hardened before the plurality of components is stacked, as claimed. Thus, Schmid and Wozniczka fail to disclose or suggest all the limitations of claim 1.

With respect to independent claim 24, neither Schmid nor Wozniczka discloses a first retaining portion and a second retaining portion formed as tapered surfaces. Furthermore, it would not be obvious to make such a modification as the tapered design has criticality. Specifically, the tapered portion more evenly distributes the pressure than square-shaped retaining portions. Thus, Schmid and Wozniczka fail to disclose or suggest all the limitations of claim 24.

Conclusion

The Office may charge any additional fees required, or credit any overpayments, to Deposit Account No. 11-0600.

The Examiner is invited to contact the undersigned at 202-220-4200 to discuss any matter regarding this application.

Respectfully submitted,

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